

constructed on similar lines. Having provided for the dissolution of the organic matter by the anaerobic process, it was necessary to oxidise the resulting tank effluent, and this was done in the contact bed by means of anaerobic bacteria which were cultivated within it. These contact beds, whilst they produced a satisfactory effluent, had their limitations. It was essential that the sewage should remain in contact with the filtrant for two hours and then, after emptying, that the bed should rest empty for aeration. It was natural, therefore, that a continuous process should be sought for; the first of this class was the late Major Tullock's percolating filter built at Sutton adjoining the Dibden contact beds. This was a rectangular filter. The filtrant was enclosed between pigeon-holed walls and the tank effluent was distributed over the surface through shallow troughs.

Next came Mr. Caink's application of the revolving sprinkler as a means for spraying a sewage filter. Such circular filters with the various types of revolving sprinklers are too well known to need description. By their means a perfect effluent is assured with the simplest mechanism.

In the United States, the late Col. Waring (who was the pioneer sanitarian in the States) blew air into the hollow floor of his contact beds so long ago (more than 20 years) that photographs I took then are fading fast away,—with more of other methods for treatment by aeration. These, with Mr. Lowcock's (Birmingham) experiments with air, led gradually on, stage by stage, to what we now know as the activated sludge treatment. The late Mr. Corbett of Salford (to whose courage in the face of much criticism the spray filters of Salford are due) laid air pipes on the floor of his roughing filters. His idea was to aerate his filtrant; it was not a great step to remove the filtrant and agitate the sewage in that tank by air.

Following close upon the air-activated sludge, we have the mechanically-activated sludge tanks by means of movement pure and simple. This work of Mr. Howarth's at Sheffield will surely be the precursor of great changes in methods of sewage purification. We shall look for the intensive treatment of sewage wherein machinery will take the place of filters. The sludge problem still remains as the "Old Man of the Sea."

It may be our ill fortune, that in this country we have to rely upon individual effort rather than upon State guidance. On the other hand, the outcome of individual thought, given the right environment, as at Manchester, for example, where Dr. Fowler and others concentrated on this subject, has been more than sufficient to keep pace with the State-aided work of the Lawrence, Mass., experimental station. Under the supervision of Dr. Clarke, an immense number of experiments have been made, and their records most carefully tabulated. The continuous and painstaking work carried on at this station must of necessity have far-reaching results.

The length of this letter has outstripped my intentions, which were to state very briefly—for the benefit of others who may not know the facts—how to me these changes from land irrigation, chemical precipitation, contact beds and percolating filters to activated and mechanically agitated sludge, are but simple evolutionary stages in the solution of a difficult problem; and I venture to think that those earnest workers to whom we owe so much are not concerned as to their priority as users of any one process, so long as their joint efforts produce the result they seek.

S. H. ADAMS,
Managing-Director,
Adams-Hydraulics, Ltd.

York, Eng., March 4th, 1920.

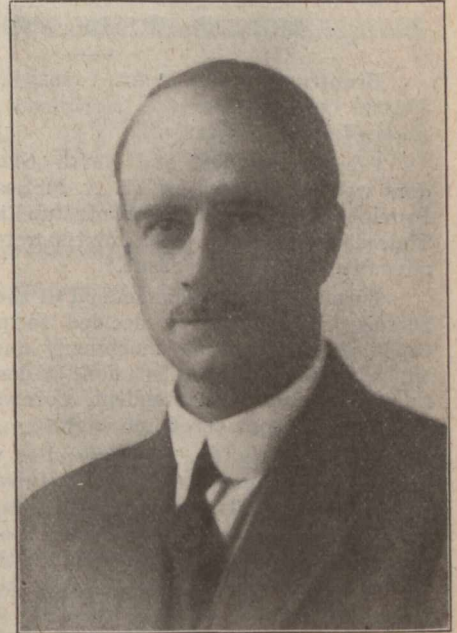
OBITUARY

ARTHUR DINNIS, president of Richard Dinnes & Son, general contractors, died last Thursday at his residence in Toronto, following an attack of heart disease. Mr. Dinnes was born 55 years ago in Toronto. He was connected with the construction of many prominent buildings in that city.

PERSONALS

HERBERT P. HEYWOOD, who was recently appointed engineer of sewers and drainage for the Toronto Harbor Commission, was born in 1889 in Lincoln, Eng., and was educated at the Lincoln Municipal Technical College. From 1906-9 Mr. Heywood was an articled pupil to the Lincoln water works engineer, and for the following year he was assistant

engineer on the design and construction of a new water supply for Lincoln. In 1910 he was promoted to the position of assistant division engineer on the above-mentioned construction, but resigned in May, 1911, and came to Canada. He secured a position with the C.N.R. as engineer in charge of construction of divisional buildings at Regina, Sask. Upon the completion of that work he was assistant engineer on maintenance-of-way for three months, and was then employed as a draftsman on



masonry substructures in the office of the C.N.R. bridge engineer. From 1913-4 Mr. Heywood was assistant division engineer for the Manitoba Government on road and bridge construction, and for the following two years he was bridge and senior concrete inspector for the Greater Winnipeg Water Board during the construction of the Shoal lake aqueduct. He enlisted in 1916 and went overseas July 4th as a sergeant with the 3rd Canadian Railway Troops, and was in France until March 28th, 1919, engaged in the construction of light and standard gauge railways. After his release from military duties, Mr. Heywood was engaged as the English representative of the Lock Joint Pipe Co., of New York, and a few months later he was transferred to Canada and became that company's representative in Ontario, which position he resigned last December.

J. CLARK KEITH, assistant city engineer of Moose Jaw, Sask., has resigned to join the staff of Morris Knowles, Ltd. Mr. Keith will be manager of the company's office in Windsor, Ont. He has been on the engineering staff of Moose Jaw for the past eight years, and was previously connected with the Irrigation Branch, Department of Interior, at Calgary. Mr. Keith was an honor graduate at the University of Toronto, class of 1910.

HAROLD STANLEY JOHNSTON, of Calgary, Alta., has accepted an appointment as hydraulic engineer on the staff of the Nova Scotia Power Commission. Mr. Johnston is an engineering graduate of McGill University, class of 1909, has had experience in hydro-electric work in Ontario and Alberta. He was engineer of the Calgary Power Co. for four years, supervising the construction of storage dams and two plants of 30,000 h.p. capacity. He was also engineer for the Dominion Parks Branch in connection with water supply for Banff and the Rocky Mountain International Park. For the past 18 months he has been assistant western district superintendent of the engineering branch of the Department of Soldiers' Civil Re-establishment, with jurisdiction from Winnipeg to Victoria, including the construction and maintenance of hospitals, vocational schools and a \$500,000 sanatorium. Mr. Johnston's immediate duties will be the preparation of designs and estimates for the Sheet Harbor project to supply the Pictou county industrial district.